

## CLAIMS

The subject matter claimed is:

1. A method for screening candidate drugs for possessing activity for altering the activity of a PDE4D5 that interacts with RACK1 comprising detecting inhibition or stimulation by one or more of the candidate drugs of the interaction of the PDE4D5 with RACK1.

2. The method of claim 1 wherein the detecting inhibition or stimulation by one or more of the candidate drugs of the interaction of the PDE4D5 with RACK1 comprises

(a) forming a complex of a peptide with RACK1, wherein the peptide has a sequence that permits formation of a complex between the peptide and RACK1 that mimics the interaction of PDE4D5 with RACK1;

(b) contacting the complex with the one or more candidate drugs, and

(c) detecting inhibition or stimulation of the formation of the complex between the peptide and RACK1.

3. The method of claim 2 wherein the peptide is a member selected from the group consisting of SEQ ID NO:18, SEQ ID NO:34, SEQ ID NO:48, and mixtures thereof.

4. The method of claim 3 wherein the peptide is SEQ ID NO:18.

5. The method of claim 3 wherein the peptide is SEQ ID NO:34.

6. The method of claim 3 wherein the peptide is SEQ ID NO:48.

7. A method for altering the activity of a PDE4D5 that interacts with RACK1 comprising contacting RACK1 with a peptide that has a sequence that permits formation of a complex between the peptide and RACK1, wherein the complex mimics the interaction of PDE4D5 with RACK1, such that the complex is formed and formation of the complex inhibits the interaction between PDE4D5 and RACK1 or stimulates the activity of PDE4D5.

8. The method of claim 7 wherein the peptide is a member selected from the group consisting of SEQ ID NO:18, SEQ ID NO:34, SEQ ID NO:48, and mixtures thereof.

9. The method of claim 8 wherein the peptide is SEQ ID NO:18.
10. The method of claim 8 wherein the peptide is SEQ ID NO:34.
- 5 11. The method of claim 8 wherein the peptide is SEQ ID NO:48.
12. A peptide for inhibiting interaction between PDE4D5 and RACK1, wherein the peptide is a member selected from the group consisting of SEQ ID NO:18, SEQ ID NO:34, SEQ ID NO:48, and mixtures thereof.
- 10 13. The peptide of claim 12 wherein the peptide is SEQ ID NO:18.
14. The peptide of claim 12 wherein the peptide is SEQ ID NO:34.
- 15 15. The peptide of claim 12 wherein the peptide is SEQ ID NO:48.
16. A composition comprising an admixture of:
- (a) a peptide for inhibiting interaction between PDE4D5 and RACK1, wherein the peptide is a member selected from the group consisting of SEQ ID NO:18, SEQ ID NO:34, SEQ ID NO:48, and mixtures thereof; and
- 20 (b) a pharmaceutically acceptable carrier.
17. The composition of claim 16 wherein the peptide is SEQ ID NO:18.
- 25 18. The composition of claim 16 wherein the peptide is SEQ ID NO:34.
19. The composition of claim 16 wherein the peptide is SEQ ID NO:48.
20. A method for treating a condition that is susceptible of being ameliorated by a type-specific inhibitor of PDE4D5 comprising administering an effective amount of a composition comprising:
- 30 (a) a peptide for inhibiting interaction between PDE4D5 and RACK1, wherein the peptide is a member selected from the group consisting of SEQ ID NO:18, SEQ ID NO:34, SEQ ID NO:48, and mixtures thereof; and
- 35 (b) a pharmaceutically acceptable carrier.
21. The method of claim 20 wherein the peptide is SEQ ID

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NO:18.

22. The method of claim 20 wherein the peptide is SEQ ID NO:34.

5 23. The method of claim 20 wherein the peptide is SEQ ID NO:48.

24. A method for obtaining a peptide that inhibits interaction of PDE4D5 and RACK1 comprising:

(a) determining a region of PDE4D5 that interacts with RACK1 in an interaction portion thereof; and

10 (b) synthesizing a peptide that interacts with the interaction portion of RACK1.

25. The method of claim 24 wherein the peptide is a member selected from the group consisting of SEQ ID NO:18, SEQ ID NO:34, SEQ ID NO:48, and mixtures thereof.

15 26. The method of claim 25 wherein the peptide is SEQ ID NO:18.

27. The method of claim 25 wherein the peptide is SEQ ID NO:34.

20 28. The method of claim 25 wherein the peptide is SEQ ID NO:48.